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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/692,885	10/20/2000	Kenneth R. Owens	4910.85890	6112

7590 02/18/2004

Banner & Witcoff, Ltd.
Suite 3000
Ten South Wacker Drive
Chicago, IL 60606-7407

EXAMINER	
KADING, JOSHUA A	

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 02/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/692,885	OWENS ET AL.	
	Examiner	Art Unit	
	Joshua Kading	2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☒ Claim(s) *5,8,9,11,17 and 20-23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 7.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

Claims 5, 8, 9, 11, 17, 20, 21, 22, and 23 are objected to because of the following informalities:

Claim 5, line 2; and claim 17, line 2 state, "switch liveness message". They should read, --that of a switch liveness message--.

Claim 7, line 1; and claim 20, line 1 state, "data messages". They should read, --data message--.

Claim 9, line 1; and claim 21, line 1 state, "re-directing said series of data". They should read, --re-directing said subsequent data--.

Claim 9, line 2; and claim 21, line 2 state, "said first path over another path". They should read, --said first path over said alternate path--.

Claim 9, lines 3-4; and claim 21, lines 3-4 state, "the steps of: sending subsequent". They should read, --the step of: sending said subsequent--.

Claim 9, line 4 states, "subsequent first data messages". It should read, --subsequent data messages--.

Claim 11, line 7; and claim 23, line 7 state, "at least a first". It should read, --at least first--.

Claim 22, line 11 states, "over an alternate data path". It should read, --over said alternate data path--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 3-9, 11, 13, 14, and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamport et al. (U.S. Patent 5,138,615) in view of Greaves et al. (U.S. Patent 6,111,858).

In regard to claim 1, Lamport discloses "in a data network comprised of a plurality of data switches interconnected to form a plurality of data paths forming a mesh configuration of data switches, a method of re-routing data messages between first and second data switches over a pre-established alternate data path linking said first and second data switches comprised of the steps of

a. sending at least a first data message over a first data path from said first switch to said second switch (figure 2; col. 1, lines 21-32 where any one of the switches acts as a first switch and the receiving switch acts as the second switch);

b. receiving at said first data switch, switch status messages from said second switch (col. 37, lines 15-48 where the ACK messages are the status messages)..."

However, Lamport lacks "c. upon the loss of said switch status messages at said first switch, re-directing subsequent data messages over an alternate data path through said data network." Greaves however, discloses "c. upon the loss of said switch status

messages at said first switch, re-directing subsequent data messages over an alternate data path through said data network (col. 17, lines 54-67 and col. 18, lines 1-12 where reconfiguring the network allows the data messages to be sent over an alternate path avoiding the faulty switch)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the re-directing of data messages with the rest of the method for the purpose of avoiding faulty switches in the network. The motivation being to allow the network to reconfigure its topology to allow the data to be routed around the faulty switch and reach its destination.

In regard to claim 11, Lamport discloses "in a data network comprised of a plurality of data switches interconnected to form a plurality of data paths forming a mesh configuration of data switches, a method of re-routing data messages around a data switch comprised of the steps of:

a. sending at least a first data message over a first data path from a first switch to a second switch (figure 2; col. 1, lines 21-32 where any one of the switches acts as a first switch and the receiving switch acts as the second switch);

b. sending said at least first data message from said second switch to a third switch (figure 2; col. 1, lines 21-32 where any one of the switches acts as the second switch and the receiving switch acts as the third switch);

c. receiving at said second data switch, switch status messages indicating the functionality of said third data switch (col. 37, lines 15-48 where the ACK messages are the status messages)..."

However, Lamport lacks "d. upon the loss of said switch status messages at said second switch, sending a switch failure message from said second switch to said first switch; e. upon the receipt of said switch failure message at said first switch, said first switch re-directing subsequent data messages away from said second and third switch via a second data path through said data network."

Greaves however, discloses "d. upon the loss of said switch status messages at said second switch, sending a switch failure message from said second switch to said first switch; e. upon the receipt of said switch failure message at said first switch, said first switch re-directing subsequent data messages away from said second and third switch via a second data path through said data network (col. 17, lines 54-67 and col. 18, lines 1-12 where reconfiguring the network allows the data messages to be sent over an alternate path avoiding the faulty switch; although Greaves does not explicitly state a failure message being sent to the first switch, it is implied that by reconfiguring the network topology to account for the third switch failing that this is as if a failure message has been sent to the first switch; since the third switch is now removed from the network topology, any data at the first switch bound for the third switch will automatically be rerouted to its destination)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the re-directing of the data messages with the rest of the method for

the purpose of avoiding faulty switches in the network. The motivation being to allow the network to reconfigure its topology to allow the data to be routed around the faulty switch and reach its destination.

In regard to claims 3 and 13, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport lacks "said data switches are asynchronous transfer mode switches." Greaves however, further discloses "said data switches are asynchronous transfer mode switches (col. 5, lines 22-24)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the ATM switches with the method of claims 1 and 11 for the same reasons and motivation as in claims 1 and 11.

In regard to claims 4 and 14, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport and Greaves lack "said data switches are IP routers." Although Lamport and Greaves disclose ATM switches and not IP routers, it would have been obvious to one with ordinary skill in the art at the time of invention to choose IP routers instead of ATM switches because the choice is dependent on the type of network the switches operate in. If it is an ATM network, the switches need to be able to handle ATM traffic; and if the network is IP, the routers need to be able to handle IP traffic. Thus the choice of IP routers versus ATM switches is a matter of design choice. The motivation for choosing IP routers is to ensure the routers work properly within their network.

In regard to claims 5 and 17, Lamport and Greaves disclose the method of claims 1 and 11. However, Greaves lacks "said switch status messages are comprised of a predetermined format, [that of a] switch liveness message." Lamport however, further discloses "said switch status messages are comprised of a predetermined format, [that of a] switch liveness message (col. 37, lines 15-48 where the ACK messages are the status messages and it is known in the art that ACK messages have a predetermined format; an ACK message is the functional equivalent of a liveness message because it allows the receiving switch to know that there isn't a failure in the link of the sending switch)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the predetermined format message with the method of claims 1 and 11 for the same reasons and motivation as in claims 1 and 11.

In regard to claims 6 and 18, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport lacks "at least one of said switches maintains a table of incoming link and path identifiers and of outgoing link and path identifiers." Greaves however, further discloses "at least one of said switches maintains a table of incoming link and path identifiers and of outgoing link and path identifiers (col. 18, lines 7-12 where the internal map is the table identifying incoming and outgoing links; and where element 110 is the controller that manages all switches in its network as can be read in col. 8, lines 53-54 and having a single controller managing all switches or a controller in each switch managing only that switch is a matter of design choice)." It

would have been obvious to one with ordinary skill in the art at the time of invention to include the link table with the method of claims 1 and 11 for the same reasons and motivation as in claims 1 and 11.

In regard to claims 7 and 19, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport lacks "said first data message represents speech information." Greaves however, further discloses "said first data message represents speech information (col. 1, lines 11-14)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the speech information with the method of claims 1 and 11 for the same reasons and motivation as in claims 1 and 11.

In regard to claims 8 and 20, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport lacks "said first data [message] represents computer data." Greaves however, further discloses "said first data [message] represents computer data (col. 1, lines 11-14)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the computer data with the method of claims 1 and 11 for the same reasons and motivation as in claims 1 and 11.

In regard to claims 9 and 21, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport lacks "said step of re-directing said [subsequent] data messages from said first path over [said alternate] path through said data network includes the [step] of: sending [said] subsequent data messages to a third data switch."

Greaves however, further discloses "said step of re-directing said [subsequent] data messages from said first path over [said alternate] path through said data network includes the [step] of: sending [said] subsequent data messages to a third data switch (col. 17, lines 54-67 and col. 18, lines 1-12 where reconfiguring the network allows the data messages to be sent over an alternate path avoiding the faulty switch which as can be seen in figure 1 means that the data must be re-routed to a third switch so that it may reach its destination)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the re-directing to a third switch with the method of claims 1 and 11 for the same reasons and motivation as in claims 1 and 11.

In regard to claim 22, Lamport discloses "in a data network comprised of a plurality of data switches interconnected to form a plurality of data paths forming a mesh configuration of data switches, a method of re-routing data messages between first and second data switches over a pre-established alternate data path linking said first and second data switches comprised of the steps of:

a. sending at least a first data message over a first data path from said first switch to said second switch (figure 2; col. 1, lines 21-32 where any one of the switches acts as a first switch and the receiving switch acts as the second switch)..."

However, Lamport lacks "b. upon the loss of said first data message at said second switch, sending a switch status messages to said first switch, the receipt of said switch status message thereby causing the re-directing of subsequent data messages over [said] alternate data path through said data network."

Greaves however, discloses "b. upon the loss of said first data message at said second switch, sending a switch status messages to said first switch, the receipt of said switch status message thereby causing the re-directing of subsequent data messages over [said] alternate data path through said data network (col. 17, lines 54-67 and col. 18, lines 1-12 where reconfiguring the network allows the data messages to be sent over an alternate path avoiding the faulty switch; although Greaves does not explicitly state a failure message being sent to the first switch, it is implied that by reconfiguring the network topology to account for the third switch failing that this is as if a failure message has been sent to the first switch; since the third switch is now removed from the network topology, any data at the first switch bound for the third switch will automatically be rerouted to its destination)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the re-directing of the data messages with the rest of the method for the purpose of avoiding faulty switches in the network. The motivation being to allow the network to reconfigure its topology to allow the data to be routed around the faulty switch and reach its destination.

In regard to claim 23, Lamport discloses "In a data network comprised of a plurality of data switches interconnected to form a plurality of data paths forming a mesh configuration of data switches, a method of re-routing data messages around a data switch comprised of the steps of:

a. sending at least a first data message over a first data path from a first switch to a second switch (figure 2; col. 1, lines 21-32 where any one of the switches acts as a first switch and the receiving switch acts as the second switch)..."

However, Lamport lacks "b. sending said at least first data message from said second switch to a third switch; upon the loss of said first data message at either said second switch or said third switch, sending a switch status message to at least one of said first and second switches thereby causing the re-directing of subsequent data messages away from said second and third switch via another data path through said data network."

Greaves however, discloses "b. sending said at least first data message from said second switch to a third switch; upon the loss of said first data message at either said second switch or said third switch, sending a switch status message to at least one of said first and second switches thereby causing the re-directing of subsequent data messages away from said second and third switch via another data path through said data network (col. 17, lines 54-67 and col. 18, lines 1-12 where reconfiguring the network allows the data messages to be sent over an alternate path avoiding the faulty switch; although Greaves does not explicitly state a failure message being sent to the first switch, it is implied that by reconfiguring the network topology to account for the third switch failing that this is as if a failure message has been sent to the first switch; since the third switch is now removed from the network topology, any data at the first switch bound for the third switch will automatically be rerouted to its destination)."

It would have been obvious to one with ordinary skill in the art at the time of invention to include the re-directing of the data messages with the rest of the method for the purpose of avoiding faulty switches in the network. The motivation being to allow the network to reconfigure its topology to allow the data to be routed around the faulty switch and reach its destination.

Claims 2, 10, 12, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamport and Greaves as applied to claims 1, 11, and 23 above, and further in view of McGill (U.S. Patent 5,436,886).

In regard to claims 2 and 12, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport and Greaves lack "said alternate data path is a protection path through said network." McGill however, discloses "said alternate data path is a protection path through said network (figure 5, where the primary path from SF0 is broken, thus the protection path from SF1 is activated and used as can be read in col. 6, lines 12-17)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the protection path with the method of claims 1 and 11 for the purpose of having an alternate path should the primary path not transmit. The motivation being increased reliability in data transmission.

In regard to claims 10 and 24, Lamport and Greaves disclose the method of claims 1 and 11. However, Lamport and Greaves lack "said first data switch is a

protection switch element." McGill however, discloses "said first data switch is a protection switch element (figure 5, where the primary switch, SF0, is no longer able to transmit data, therefore the protection switch SF1 is activated and used as can be read in col. 6, lines 12-17)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the protection path with the method of claims 1 and 11 for the purpose of having an alternate path should the primary path not transmit. The motivation being increased reliability in data transmission.

In regard to claim 2, Lamport and Greaves disclose "the data network of claim 1". However, both Lamport and Greaves lack "said alternate data path is a protection path through said network." Although both Lamport and Greaves lack "said alternate data path is a protection path

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lamport and Greaves as applied to claim 11 above, and further in view of Shew et al. (U.S. Patent 6,530,032 B1).

In regard to claim 15, Lamport and Greaves disclose the method of claim 11. However, Lamport and Greaves lack "said data switches are digital cross connect switches controlled by MPLS." Shew however, discloses "said data switches are digital cross connect switches controlled by MPLS (col. 2, lines 8-11 where electrical is taken to be digital; col. 2, lines 28-32 identifies the MPLS controller)." It would have been

obvious to one with ordinary skill in the art at the time of invention to include the digital switches and MPLS control with the method claim 11 for the purpose of re-routing data with greater ease. The motivation being shorter delays in re-routing data when failures occur (col. 1, lines 19-28; col. 5, lines 31-36).

In regard to claim 16, Lamport and Greaves disclose the method of claim 11. However, Lamport and Greaves lack "said data switches are optical cross connects and switches controlled by MPLS." Shew however, discloses "said data switches are optical cross connects and switches controlled by MPLS (col. 2, lines 8-11; col. 2, lines 28-32 identifies the MPLS controller)." It would have been obvious to one with ordinary skill in the art at the time of invention to include the optical switches and MPLS control with the method claim 11 for the purpose of re-routing data with greater ease. The motivation being shorter delays in re-routing data when failures occur (col. 1, lines 19-28; col. 5, lines 31-36).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. McDysan (U.S. Patent 6,226,260 B1) uses an ATM self-healing network to deal with node (switch) failures. Hsing et al. (U.S. Patent 6,167,025) has routing tables inside the ATM switches as well as failure detection routines. Cedrone et al. (U.S. Patent 6,538,987 B1) uses protection switches in the optical network to deal

with transmission degradation. McAllister et al. (U.S. Patent 6,215,765 B1) uses alternate routes through nodes to deal with connection failure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua Kading whose telephone number is (703) 305-0342. The examiner can normally be reached on M-F: 8:30AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas Olms can be reached on (703) 305-4703. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Joshua Kading
Examiner
Art Unit 2661

JK
13 February 2004

KENNETH VANDERPUYE
PRIMARY EXAMINER